

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**ROTARY ENGINE.**—Marcellus A. Buford, Thompson's Station, Tenn. The casing has steam inlet and exhaust chambers, a main driving shaft being mounted to rotate in the casing, while a wheel with central disks having inlet openings in their peripheries is secured on the shaft, exhaust disks being secured to the central disks, and the construction is adapted for the use of steam, air, water, or other suitable fluid.

## Railway Appliances.

**CAR COUPLING.**—Josiah Poffenbarger, York, Neb. This device is designed to act automatically, the bumpers having transverse stationary rods combined with a locking book with pivoted head and curved lower end, the locking lever having a spring bolt at its forward end, with other novel features, the construction being simple, strong, and cheap.

**CAR COUPLING.**—John J. Jeter, Campbellsville, Ky. This coupling acts automatically, and the improvement is applicable to the ordinary drawheads, the link being adjustable up or down as desired, while the drawhead is preferably secured to the car so that it may move longitudinally back against a spring when it strikes another drawhead.

## Mechanical.

**WRENCH.**—Sidney Cook, Orlando, Fla. This improved wrench is of simple construction, and so made that one jaw will be removable and adjustable, while the movable jaw may be placed at various angles with respect to the fixed jaw and adjusted laterally while in any position.

**COMBINATION TOOL.**—Samuel L. Heindol, Anderson, Ind. This invention covers a tool comprising a hammer, crescent-saw set, and gauge and is made also to hold a file for dressing and pointing saw teeth all to a uniform length.

**NUT LOCK.**—Isaac F. Leiby, Baird, Texas. Combined with a loop-formed nut-locking device, and the plate to which it is hinged, is a supplementary locking device, consisting of a wire or rod having one end bent at right angles and embracing the hinge of the main device, while its other end is provided with a hook to receive the side bar of the main device.

**DOFFER CLEANER.**—George Bebb, Indianapolis, Ind. This is a cleaner for carding machines working on woolen and cotton fibers, and the invention relates to that class of cleaners in which a cleaner bar having card clothing is supported so that it may be swung alternately in contact with the doffer and with the stripping bar, the mechanism being such that the cleaner need not be continuously operated, but only at such intervals as may be found desirable.

**BARKING AND SPLITTING MACHINE.**—Otis W. Stearns, Johnson, Vt. This machine has a vertically reciprocating barking knife and a vertically reciprocating splitter, both operated from one drive shaft at different speeds and arranged in proximity to each other, whereby as the log is barked it may be convenient to the splitter knife.

## Miscellaneous.

**SEWAGE PURIFIER.**—James J. Powers, New York City. By this invention the sewage is supplied with lime at intervals and precipitated, the effluent flowing off at the end of the apparatus, while the sludge and solid matter remains to be removed at intervals, the sewage being held in a quiescent state while settling, the flow being intermittent to and from the settling tanks and automatically regulated at given quantities.

**SHAFT SUPPORT.**—Edward Clark, New York City. This is a device for taking off the weight and strain from the back of a horse hitched to a vehicle, a plate being hinged on the vehicle to engage the transverse beam of the shafts, the free end of such pivoted plate resting on a screw, which is adjustable to suit the height of the horse.

**HYDROCARBON BURNER.**—Graves Griffith and Theodore L. Miller, Blanchard, Iowa. This burner is especially adapted for furnaces, stoves, etc., although its principle may likewise be applied to a safety lamp, it being designed to secure safety against explosion of accumulated gas and complete control of the oil supply, while the amount of burning surface is regulated, and the requisite amount of air is fed to the burning oil or fuel.

**CURRENT PROPELLER.**—Ernst Lotze, Spokane Falls, Washington Ter. A chain anchored at one end up stream, where there is a current, is passed through the boat from stem to stern, in close engagement with a shaft on which are side wheels dipping into the water, the design being that the revolving of the paddle wheels by the current will operate to pull the boat, by means of the chain, up stream.

**ELECTRIC LANTERN.**—Charles W. Cox and Thomas E. Van Dyke, Philadelphia, Pa. Combined with a suitable casing containing a battery is an automatic switch arranged to close the circuit as the top of the casing is opened and open the circuit when the casing is closed, a lamp being placed in the circuit in convenient position for use, making a lamp adapted for use where a flame would be unsafe.

**"PICKING" THIMBLE FOR STRINGED INSTRUMENTS.**—Norman E. Barnes, Bay Shore, N. Y. This thimble is preferably made of metal, with a tubular split portion, whereby it may be readily slipped over a finger or thumb, and a rounded point which engages the strings of a stringed musical instrument in performing thereon.

**DREDGING BUCKET.**—Rezin Hosford, Lebanon, Ind. The frame of the implement consists of a head, upon each extremity of which two arms are pivoted, extending downward and outward in opposite directions, and carrying shovel blades, with other novel features, the object being to provide an implement of

simple construction to dredge oysters, gravel, sand, etc., in which the jaws of the bucket may be closed prior to being lifted.

**SCRAPER.**—Etienne L. Lefebure, New York City. This is a tool for scraping wood and other surfaces, being specially designed for plasterers' use in cleaning mouldings, its blade having a central horizontal portion and edge portions inclined thereto, one of which edge portions has a beveled scraping edge and the other a scraping edge formed with short teeth, the blade being detachable for sharpening or repairing.

**PRINTERS' KNIFE.**—Louis J. Dus, Milwaukee, Wis. This is a knife with extensible blades arranged at opposite ends of its handle, presenting a series of sharp cutting edges, for the convenience of a pressman in cutting out "overlays" or "underlays" in making a form ready to work, and making a tool better suited to such work than the ordinary pocket knife.

**TABACCO PRESS.**—Irving A. McKinley, Cicero, N. Y. This is a portable press especially adapted for packing leaf tobacco in boxes for shipment, the press being quickly applied to and detached from the box or case, the invention obviating the necessity of the lifting and handling of the boxes necessary under former methods of doing the work.

**LOAD BINDER.**—Thomas A. Rogers, Bloomdale, Ohio. This device is designed especially for tying or binding a load of logs, a curved arm being pivoted to a head having a handle, and a grab hook linked in the outer extremity of the arm, whereby each end of a chain will be carried in opposite directions and the body of the chain made to firmly bind upon the load.

**VEHICLE BODY.**—Lafayette A. Melburn, Denver, Col. The panels of this body have their meeting ends formed with dovetail grooves and ribs, pins being driven partially in each of the panels at their joints, while dovetail grooves are fitted to receive the seat posts, which are fitted in the grooves, and the sills secured to the inner sides of the panels.

**TYPE WRITING MACHINE.**—Lebbens G. Garrett, Bissell, Pa. This is a machine by which whole words or phrases may be printed at once on the same line across a page and at a reporting speed by depressing keys of a key board conveniently arranged at the front of the instrument, the machine having oscillating type carriers and connected keys operating upon them to bring the type into line.

## SCIENTIFIC AMERICAN BUILDING EDITION.

MAY NUMBER.—(No. 43.)

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1. Elegant plate in colors, showing elevation in perspective and floor plans for a dwelling costing four thousand dollars. Page of details, etc.
2. Plate in colors of a summer cottage for one thousand two hundred dollars. Floor plans and page of details.
3. Design for a bank building, with plan and view of interior.
4. Perspectives and floor plans of an elegant residence at Bell Haven Park, in Greenwich, Conn. S. Edwin Tobey, Boston, Mass., architect.
5. A mountain cottage lately erected at St. Cloud, Orange, N. J. Elevation and floor plans. Architect Mr. Arthur D. Pickering, New York.
6. A dwelling at Springfield, Mass. Plans and perspective elevation. Cost eight thousand five hundred dollars.
7. Engraving showing perspective elevation of a cottage erected at Roseville, N. J., at a cost of six thousand seven hundred and fifty dollars. Floor plans. F. W. Ward, architect, New York.
8. Illustration and floor plans of a combined school house and country cottage erected at St. Cloud, Orange, N. J. Arthur D. Pickering, New York, architect.
9. A residence at Springfield, Mass. Perspective elevation and floor plans. Cost three thousand five hundred dollars. J. D. & W. H. McKnight, architects.
10. A cottage built at Roseville, N. J., for six thousand seven hundred and fifty dollars. Elevation and floor plans.
11. A cottage at Holyoke, Mass., lately erected for Howard A. Crafts, at a cost of three thousand one hundred dollars.
12. View of Anburndale Station, Boston and Albany Railroad, with plan of station grounds. H. H. Richardson, architect.
13. Miscellaneous Contents: The final payment clause in building contracts.—The plan.—Bending wood.—The Stanford tomb.—Experiments with cement mortar.—The railroad in horticulture.—The improved "Economy" furnace, illustrated.—The Academy at Mount St. Vincent on the Hudson, N. Y.—Wrought iron and cement lined pipes, illustrated.—Sheathing and lath combined, illustrated.—Artistic wood mantels.—A new ventilating furnace, illustrated.—Creosote wood preserving stains.—Large trees.—Rotary cutting tools for working wood, illustrated.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

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## Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Needle slot screens and all kinds of mining screens. Robert Aitchison Perforated Metal Co., Chicago, Ill.

Guild & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc.

Mech'l draughtsman wants situation. "E. C.," box 773, New York.

Engineers wanted to send their addresses and receive free a 25 cent book, "Hints and Suggestions for Steam Users." Lord & Co., 118 9th St., Philadelphia, Pa.

Wanted.—The latest novelty for a corner store awning. L. H. Daloz, 510 Tremont St., Boston, Mass.

For Sale.—Patent No. 400,571, "mirror attachment to opera glasses." See illustration, page 291.

For Sale.—To Wire Fence or Lightning Rod Manufacturers.—License to manufacture "Lightning Conductors for Wire Fences." Patented. See Sci. Am., April 27. Address F. E. Wood, Kingman, Arizona.

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Water purification for cities, manufacturers, and private users. The only successful legitimate system. Hyatt Pure Water Co., 16, 18 & 20 Cortlandt St., New York.

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## NEW BOOKS AND PUBLICATIONS.

**THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC AND PHOTOGRAPHER'S DAILY COMPANION.** 1889. \$1.00. Published by Henry Greenwood & Co., London, England.

This widely known annual, now in its twenty-ninth year, comes to us filled with a great variety and larger quantity of information more valuable to photographers than ever before. It has nearly four hundred pages of reading matter and one photographic illustration, and contains a very full explanation of the various formulas for printing with iron salts, such as making blue prints, printing blue or black lines direct on a white background, and directions for toning such prints. There are also a number of short illustrated articles, covering many subjects, together with reliable formulas and tables of great use to the photographer.

**THE YEAR BOOK OF PHOTOGRAPHY.** 1889. By Thomas Bolas. Piper & Carter, London. Pp. 216. Price \$1.

This excellent annual, now in its thirtieth year, contains much practical information for the photographer. It has as a frontispiece a very fine specimen of a Woodbury type entitled "Group of Champion Great Danes," which are three handsome-looking dogs very artistically posed. The picture is reproduced from a negative by Thomas Fall. Among the useful articles is one "On the Preparation and Use of Gelatine Plates, for Transparencies," by W. K. Burton, which alone is worth the price of the book. There are illustrations of improved lamps for burning magnesium powder, descriptions of the carbon and photo-engraving processes, and under "Every-day Experiences and Processes" are several pages of formulas, illustrations of new devices, and other information of a very practical nature.

**NATURALISTIC PHOTOGRAPHY FOR STUDENTS OF THE ART.** By P. H. Emerson, B.A., M.A. E. & F. Spon, New York. Pp. 307, xii. Price \$2.

This book contains a greater amount of information on the artistic elements to be considered in photography than any that we know of. The author, himself an artist, has elucidated very concisely, yet also very fully, the principles which should be kept in view in making artistic and attractive photographs. Accompanying the text are marginal notes of much convenience in attracting the eye to the special subjects considered on any one page. The work is divided into three books. The first treats of "Terminology and Argument," in three chapters. The second chapter relates to "Naturalism in Pictorial and Glyptic Art," explaining the various styles and schools of art. The third chapter is devoted to a full explanation of "Phenomena of Light, and Art Principles Deduced Therefrom." Book II. includes "Technique and Practice," covering a description of cameras and tripods, lenses, dark room and apparatus, studio and furniture, exposure, development, retouching, printing, enlarging, transparencies, mounting, preparing exhibits for exhibitions, and a very good explanation

of the latest photographic processes. Book III. is on Pictorial Art, and embraces such subjects as "Educated Sight," "Composition," "Out and Indoor Work," "Hints on Art," and "Decorative Art." Following this are some very good suggestions as to what photographic libraries should contain. In his introduction Mr. Emerson states that "to give the student a clear insight into the first principles of art is the chief aim of the book." In these days of amateur photography, when the mechanical and chemical manipulations necessary to obtain a good photograph are so what is acquired, a book like this, calling attention in simple language to the elementary conditions that should be observed in making artistic photographs, will be greatly appreciated. So far as the science of photography is described, enough is said to give the reader considerable general information, but we must take exception to the statement that lantern slides have no place in art. They are as truly useful in illustrating the composition of a picture as a sketch or painting; therefore we think they should be commended. The book as a whole is very well written, and will be an excellent guide to those desiring to learn the art principles of photography and its practice.

**THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC.** 1889. By C. W. Canfield. Scovill Manufacturing Co., New York. Pp. 328. Price \$1.

A book full of the latest ideas, formulas, and descriptions of new apparatus, by American photographers. It contains thirteen full page illustrations by twelve different processes, also a complete record of American photographic societies, a list of books on photographic subjects published during the year, diagrams of shutters, dark rooms, and stereoscopic printing frames, articles on the "Making of Lantern Slides," by W. H. Raw, "Silver Printing on Plain Paper," by Charles L. Mitchell, M.D., the "Preparation of Specimens for Photo-micrography," by C. B. Longenecker, "Formulas for Various Kinds of Blacks," by C. C. Vevers, and a full description of "A Photo-Mechanical Printing Process for Amateurs," by Rev. W. H. Burbank. At the end of the book are very full tables, and formula of special value to either the professional or amateur photographer. A list of American patents on photographic subjects during the year 1888 is also given. The typography is of a superior character. There has seldom been issued a book so excellently printed and conveniently arranged as this appears to be.

Any of the above books may be purchased through this office. Send for new book catalogue just published.

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## Notes & Queries

## HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(776) F. M. D. writes: 1. Is there any way of preventing white holly in fretwork from turning yellow after it has been in use a short time? A. We cannot recommend any cure. Possibly sponging with javelle water might help it, but this would tend to destroy the glue. 2. Also do you publish or sell a small book called the French Polisher's Manual? I think I saw a reference to it in the Notes and Queries some time ago, but failed to find it again. A. We can supply the French Polisher's Manual. Price 25 cents. 3. Is there any preparation that can be applied to cotton covered wire, so that the insulation will remain good if placed in the ground? If not, what is the best kind of insulation for the purpose? A. We advise you to use gutta percha covered wire, or special underground cable. You will not be able to get any satisfaction out of cotton covered wire. 4. I have a number of jars of Grenet battery, zincs 1 1/4 by 4 and carbons about the same size, made of light carbons. The jars hold about a quart. How many of these cells would be required and how should they be connected to run a three c. p. or five c. p. lamp? A. Use six couples for small lamp and ten couples for larger lamp, arranged in series.

(777) J. R. R. asks (1) why a telephone ear cup, made with same size and power magnet, wound with same size and amount of wire as the Bell, but in a wood case, does not work as well, or should it if properly made. A. It should make no difference. A wooden case works perfectly well. 2. Also give description of induction coil used with Blake transmitter. A. The primary is wound with No. 18 to 24 wire to 1/2 ohm resistance, the secondary with No. 36 wire to 80 ohms resistance. A core of fine iron wire in a cylindrical bundle is best.

(778) J. M. W. asks (1) for the cheapest artificial manner in which to freeze small quantities of water. A. Freezing apparatuses are sold for this purpose. A simple method is to cool water by placing it in a tin vessel, surrounding the latter with cold water in which one-half its weight of nitrate of soda is dissolved. Then on repeating the operation with the cooled water as the solvent of more nitrate of ammonia, a second portion can be frozen. We fear that you will find little satisfaction in artificial ice making except with a regular machine. 2. Also if the water on melting will be as pure and wholesome as it was before freezing? A. Yes.